

REMARKS

This response is offered in reply to the Office Action of January 4, 2005.

Applicant acknowledges and appreciates indicated allowability of claims 3-6, 8-12, 16-19, 21-23 and 25-26. These claims have not been rewritten since they are believed to depend from allowable claims.

On page 2 of the office action, claims 1, 7, 13-15, 20, and 24 are rejected under 35 USC 102(b) as anticipated by the EP 0167723.

On page 3 of the office action, claims 1, 7, 13-15, 20, and 24 also are rejected under 35 USC 103(a) in view of the EP 0167723.

Applicant has amended the rejected claims in a manner to clarify that hafnia is present in amount of at least 15 weight %.

For example, claim 1 recites a ceramic thermal barrier coating wherein at least a portion of the thermal barrier coating comprises a stabilized zirconia coating that includes yttria and hafnia, wherein the hafnia is present in an amount of at least about 15 weight % of at least the portion effective to reduce thermal conductivity of at least the portion of the stabilized zirconia coating.

Claim 7 recites an article comprising a metallic substrate and a ceramic coating on a surface of said substrate, said ceramic coating having at least a portion comprising a stabilized zirconia coating that includes yttria and hafnia, wherein the hafnia is present in an amount of at least about 15 weight % of at least the portion effective to reduce thermal conductivity of at least the portion of the stabilized zirconia coating.

Claim 15 recites a method of protecting a surface of a metallic substrate, comprising depositing a coating comprising zirconia, yttria and hafnia on the surface, wherein the hafnia is present in the coating in an amount of at least about 15 weight % of the coating effective to reduce thermal conductivity of the coating deposited on the substrate as compared to a similar coating having an impurity amount of hafnia.

Claim 20 recites a coated article comprising a substrate selected from the group consisting of a nickel based superalloy and cobalt based superalloy and a ceramic thermal barrier coating on the substrate and comprising zirconia, yttria, and hafnia, wherein hafnia is present in an amount of at least about 15 weight % of the thermal barrier coating effective to reduce thermal conductivity of the thermal barrier coating as compared to a similar thermal barrier coating having an impurity amount of hafnia therein.

Claim 24 recites a ceramic coating comprising zirconia, yttria, and hafnia, wherein hafnia is present in an amount of at least about 15 weight % of the coating effective to reduce thermal conductivity of the ceramic coating as compared to a similar ceramic coating having an impurity amount of hafnia therein.

The '723 reference does not disclose or suggest claims 1, 7, 13-15, 20, and 24. For example, the '723 reference discloses a flame spray material for producing a low thermal conductivity ceramic coating wherein the flame spray material comprises a homogeneous composition of zirconium oxide, yttrium oxide, zinc oxide, and optionally a binder. The yttrium oxide is present in an amount of about 2 to 40 weight % and the zinc oxide oxide is present in an amount up to 8 weight %. The zirconium oxide may contain up to about 10 % by weight of hafnium oxide based on the total of the zirconium oxide and the hafnium oxide.

Thus, even if the flame spray material of the '723 reference were 100% zirconium oxide, only 10 weight % of hafnium oxide would be present. This amount is less than that recited in Applicant's claims 1, 7, 13-15, 20, and 24.

Of course, the flame spray material of the '723 reference comprises less than 100% zirconium oxide since yttrium oxide must also be present in an amount of about 2 to about 40 weight %. As a result, the examiner will appreciate that the flame spray material of the '723 reference will contain less than 10 weight % hafnium oxide. Again, this amount is less than that recited in Applicant's claims 1, 7, 13-15, 20, and 24.

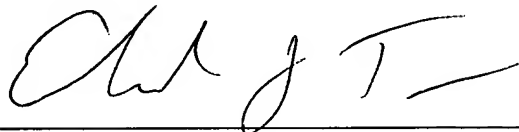
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Thus, the '723 reference not only does not disclose or suggest Applicant's claims 1, 7, 13-15, 20, and 24, but it also teaches away from these claims.

Reconsideration of the Section 102(b) and 103(a) rejections of claims 1, 7, 13-15, 20, and 24 is requested.

Applicant believes the pending claims are in condition for allowance, and action to that end is requested.

Respectfully submitted,

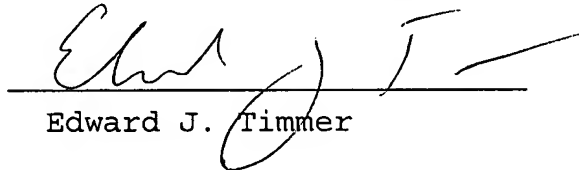


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